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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,249	04/05/2004	Tohru Nakano	251418US2	2736

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EXAMINER	
WALSH, RYAN D	
ART UNIT	**PAPER NUMBER**
2852	

NOTIFICATION DATE	DELIVERY MODE
08/07/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/817,249	NAKANO ET AL.	
	Examiner	Art Unit	
	Ryan D. Walsh	2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 43-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 43-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 3/2/05, 7/25/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 15, 2007 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Montfort et al. (US Pat. # 5,842,102), hereinafter referred to as Montfort.

Regarding claims 1 and 11, Montfort teaches, "(Image forming apparatus including...) A cleaning unit for removing toner remaining on a surface of an image carrier (Fig. 3, ref. # 10) of an image-forming apparatus, comprising: a vibration member (84) extending in a direction of a width of the image carrier, the vibration member having at least one vibration application part (102) attached thereto; a blade member (91) attached to at least an end region of the vibration member, the blade member extending in the direction of the width of the image carrier; and a driving part configured to drive

the at least one vibration application part at a driving frequency, the driving frequency being a natural resonance frequency occurring at a time of assembly of the blade member and the image carrier (Col. 4, Ln. 67- Col. 5, Ln. 2), wherein the vibration member is configured to provide vibration to the blade member and a force to press the blade member against the image carrier (Col. 5, Ln. 2-3), and wherein the blade member has a thickness of 50 to 2000 micrometers (Table 1 teaches the blade being 2.5 mil and 10 mil, which equates to 63.5 and 254 micrometers respectively)."

Regarding claim 7, Montfort teaches, "wherein the at least one vibration application part includes a piezoelectric element (Col. 5, Ln. 59-60)."

Regarding claim 43, Montfort teaches, "wherein the blade member has a thickness of 100 to 500 micrometers (Table 1 teaches the blade being 2.5 mil and 10 mil, which equates to 63.5 and 254 micrometers respectively)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-7, 9, 11 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa (US Pat. # 6,128,461) in view of Montfort.

Regarding claims 1 and 11, Yoshikawa teaches, "(Image forming apparatus including...) A cleaning unit for removing toner remaining on a surface of an image

carrier of an image-forming apparatus, comprising: a vibration member (see Fig. 2, parts between 3 & 15, also see Col. 6, Ln. 21) extending in a direction of a width of the image carrier, the vibration member having at least one vibration application part (Fig. 2, ref. # 15) attached thereto; a blade member (3) attached to at least an end region of the vibration member, the blade member extending in the direction of the width of the image carrier; and a driving part (Abstract, Ln. 6-12) configured to drive the at least one vibration application part at a driving frequency, the driving frequency being a resonance frequency (Col. 4, Ln. 36-40), wherein the vibration member is configured to provide vibration to the blade member and a force to press the blade member against the image carrier (Col. 6, Ln. 19-27)." Yoshikawa does not teach, "the driving frequency being a natural driving frequency occurring at a time of assembly of the blade member and the image carrier, and wherein the blade member has a thickness of 50 to 2000 micrometers." However, Montfort teaches the deficiencies of Yoshikawa (see Col. 4, Ln. 67- Col. 5, Ln. 2, and table 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yoshikawa's invention to include the driving frequency being a natural driving frequency occurring at a time of assembly of the blade member and the image carrier; and wherein the blade member has a thickness of 50 to 2000 micrometers.

The ordinary artisan would have been motivated to modify Yoshikawa's invention in a manner described above for at least the purpose of applying the largest vibrations to the edge of the blade to ensure better cleaning.

Regarding claim 2, Yoshikawa teaches, "wherein the driving part is configured to be capable of changing the driving frequency (Col. 4, Ln. 36-44)."

Regarding claim 3, Yoshikawa teaches, "wherein the driving frequency of the driving part is set based on frictional resistance between the blade member and the image carrier (Col. 5, Ln. 38-61 & Col. 6, Ln. 34-37)."

Regarding claim 4, Yoshikawa teaches, "wherein the driving frequency of the driving part is set based on a coefficient of friction of the surface of the image carrier (Col. 1, Ln. 56-67, Col. 2, Ln. 1-26, Col. 5, Ln. 38-61 and Col. 6, Ln. 35-37)."

Regarding claim 5, Yoshikawa teaches, "wherein the driving frequency of the driving part is set based on rotational torque of the image carrier (Col. 5, Ln. 38-61 and Col. 6, Ln. 34-37, Rotational Torque → Rotational Friction)."

Regarding claim 6, Yoshikawa teaches, "wherein the driving frequency of the driving part is set based on a result of detection of a cleaning characteristic (Col. 7, Ln. 4-12)."

Regarding claim 7, Yoshikawa teaches, "wherein the at least one vibration application part includes a piezoelectric element (Col. 6, Ln. 19-20)."

Regarding claim 9, Yoshikawa teaches, "wherein the resonance frequency is determined by the blade member and the image carrier (Col. 5, Ln. 38-61 & Col. 6, Ln. 34-37, equivalent to friction resistance between the blade member and image carrier)."

Regarding claim 45, Montfort teaches, "wherein the blade member has a thickness of 100 to 500 micrometers (Table 1 teaches the blade being 2.5 mil and 10 mil, which equates to 63.5 and 254 micrometers respectively)."

Claims 8, 10, 12, 44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa in view of Monfort, and in further view of Kobayashi et al. (US Pub # 2002/0057927), hereinafter referred to as Kobayashi.

Regarding claim 8, the combination of Yoshikawa and Monfort do not teach, "wherein the toner is polymerized toner formed by polymerization." However, Kobayashi teaches the deficiencies of Yoshikawa (see paragraph [0152]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Yoshikawa and Monfort's invention to include wherein the toner is polymerized toner formed by polymerization.

The ordinary artisan would have been motivated to modify the combination of Yoshikawa and Monfort's invention in a manner described above for at least the purpose of reducing fog image and residual toner on the photo drum, in turn reducing the problems associated with cleaning the drum.

Regarding claim 10, Yoshikawa and Monfort teach, "at least one of an image carrier, a charging unit, a development unit, and a transfer unit; and a cleaning unit configured to remove toner remaining on a surface of the image carrier, the cleaning unit including: a vibration member extending in a direction of a width of the image carrier, the vibration member having at least one vibration application part attached thereto; a blade member attached to at least an end region of the vibration member, the

blade member extending in the direction of the width of the image carrier; and a driving part configured to drive the at least one vibration application part at a driving frequency, the driving frequency being a natural resonance frequency occurring at a time of assembly of the blade member and the image carrier, wherein the vibration member is configured to provide vibration to the blade member and a force to press the blade member against the image carrier; and wherein the blade member has a thickness of 50 to 2000 micrometers (Shown in claim 1's 103(a) rejection above)." The combination of Yoshikawa and Monfort do not teach, "a process cartridge freely attachable to and detachable from a main body of an image forming apparatus." However, Kobayashi teaches the deficiencies of Yoshikawa (see Paragraph [0087]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Yoshikawa and Monfort's invention to include a process cartridge freely attachable to and detachable from a main body of an image forming apparatus.

The ordinary artisan would have been motivated to modify the combination of Yoshikawa and Monfort's invention in a manner described above for at least the purpose of providing the ability to exchange an expired cartridge void of toner (easier maintenance).

Regarding claim 12, Yoshikawa teaches, "at least one of an image carrier, a charging unit, a development unit, and a transfer unit; and a cleaning unit configured to remove toner remaining on a surface of the image carrier, the cleaning unit including: a vibration member extending in a direction of a width of the image carrier, the vibration member having at least one vibration application part attached thereto; a blade member

attached to at least an end region of the vibration member, the blade member extending in the direction of the width of the image carrier; and a driving part configured to drive the at least one vibration application part at a driving frequency, the driving frequency being a naural resonance frequency at a time of assembly of the blade member and the image carrier, wherein the vibration member is configured to provide vibration to the blade member and a force to press the blade member against the image carrier; and wherein the blade member has a thickness of 50 to 2000 micrometers (Shown in claim 1's 103(a) rejection above)." The combination of Yoshikawa and Monfort do not teach, "an image-forming apparatus forming a color image, comprising: a plurality of process cartridges freely attachable to and detachable from a main body of the image forming apparatus." However, Kobayashi teaches the deficiencies of Yoshikawa (see Fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Yoshikawa and Monfort's invention to include an image-forming apparatus forming a color image, comprising: a plurality of process cartridges freely attachable to and detachable from a main body of the image forming apparatus.

The ordinary artisan would have been motivated to modify the combination of Yoshikawa and Monfort's invention in a manner described above for at least the purpose of providing the ability to exchange an expired cartridge void of toner (easier maintenance).

Regarding claims 44 and 46, Montfort teaches, "wherein the blade member has a thickness of 100 to 500 micrometers (Table 1 teaches the blade being 2.5 mil and 10 mil, which equates to 63.5 and 254 micrometers respectively)."

Response to Arguments

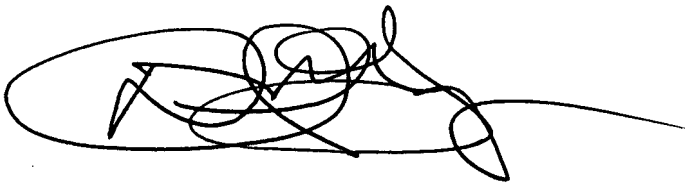
Applicant's arguments filed June 15, 2007 have been fully considered but they are not persuasive. Applicant states that Montfort does not teach the amendments filed June 15, 2007, but as clearly shown in Table 1, Montfort teaches the claimed thickness of applicant's invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Walsh whose telephone number is 571-272-2726. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ryan D. Walsh
Patent Examiner
Art Unit 2852

DAVID M. GRAY
SUPERVISORY PATENT EXAMINER